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Updates:

Database Foundations
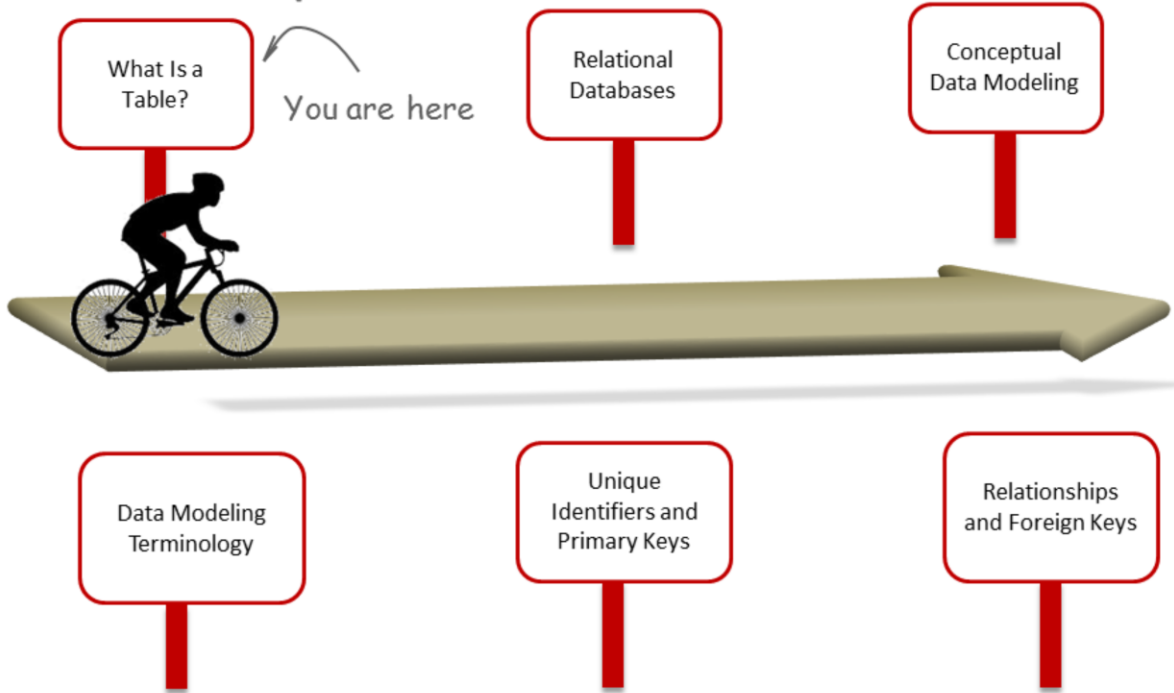
2-1
What Is a Table?

Roadmap

What Is a Table?

You are here

Relational Databases

Conceptual Data Modeling

Data Modeling Terminology

Unique Identifiers and Primary Keys

Relationships and Foreign Keys

DFo 2-1
What Is a Table?

3

Objectives

This lesson covers the following objectives:

- Describe the features of a single table

- Explain the advantages and disadvantages of a flat file database

DFo 2-1
What Is a Table?

Single Table

- A flat file database is a type of database that stores data in a single table.

- Flat file databases are generally in plain-text form, where each line holds only one record.

	CUSTOMER_ID	FIRST_NAME	LAST_NAME	ADDRESS	CITY
Record 1	CN0001	Rick	Carmen	King Street	Boston
Record 2	CN0002	Nick	Doris	6 Rotrat	Boston
Record 3	CN0003	Mary	Pink	Centrale	Lagos

Unlike a relational database, which makes use of multiple tables and relations, a flat file database stores data in a single table. Flat file databases are generally in plain-text form, where each line holds only one record. The fields in the record are separated by delimiters such as tabs and commas.

Flat file database tables can be set in various application types, including HTML documents, simple word documents, or worksheets in spreadsheet applications. The tables can be sorted based on column values. These tables serve as a solution for simple database tasks. The flat file design puts all database information in one table, or list, with fields to represent all parameters. A flat file may contain many fields, often with duplicated data that is prone to data corruption.

If you decide to merge data between two flat files, you need to copy and paste relevant information from one file to the other. There is no automation between flat files. For example, if two or more flat files contain client addresses and a client moved, you would have to manually modify the address parameters in each file that contains the client's information. Changing information in one file has no bearing on other files.

Flat files offer the functionality to store information, manipulate fields, print or display formatted information, and exchange information with others, through email and over the Internet. Some flat files may be attached to external files, such as text editors, to extend functionality and manage related information.

Advantages and Disadvantages of a Flat File Database

Advantages	Disadvantages
➤ Easy to understand	➤ Less security
➤ Easy to implement	➤ Data inconsistency
➤ Easy to extract information	➤ Data redundancy
➤ All records stored in one place	➤ Cumbersome sharing of information
➤ Simple sorting and filtering of reports	➤ Slow for huge databases
➤ Less hardware and software requirements	

A flat file database is simpler and less expensive to use. It fits the needs of many small businesses and home users.

A flat file has many limitations because it contains ALL data in ONE table. Here are some more disadvantages of flat file databases:

- No support for multi-user access
- Limited to smaller databases
- Limited functionality
- Integrity issues
- No security
- No backup and recovery
- No protection for data in concurrent access

6

Example of a Flat File Database

	AUTHOR_ID	AUTHOR_NAME	TITLE
Record 1	AD0001	Oscar Wilde	A Vision
Record 2	AD0002	Leo Tolstoy	War and Peace
Record 3	AD0003	Oliver Goldsmith	Citizen of the World
Record 4	AD0003	Oliver Goldsmith	Androcles and the Lion

The slide example shows how the details of books and authors are stored in a single table. Notice that both the details for the books and authors are stored in this single table, and there is a repetition of values.

Summary

In this lesson, you should have learned how to:

- Describe the features of a single table
- Explain the advantages and disadvantages of a flat file database